

REMARKS

A total of 17 claims remain in the present application. The foregoing amendments are presented in response to the Office Action mailed April 29, 2008, wherefore reconsideration of this application is requested.

By way of the above-noted amendments, claims 1, 2, 6, 9, 11 and 12 have been amended to more precisely define features of the present invention. In particular, the originally filed specification teaches a method and system in which a line detection algorithm is used to analyse each of the mosaic images to produce a respective set of line segments corresponding to metal lines of the mosaic image, each line segment including a pair of endpoints identified by corresponding x and y coordinates with respect to a frame defined by the mosaic image; at least two virtual reference points are established using endpoints from each of the mosaic images that are vertically aligned to within an uncertainty of the coarse alignment of the mosaic images; the virtual reference points are then used to adjust x and y coordinates of each of the mosaic images to align the mosaic images within a three dimensional coordinate space; and the respective line segments of each mosaic image are then processed within the three dimensional coordinate space to define vias, lines and branch lines of the semiconductor chip, interconnected to define the three-dimensional model. Claim 1 has been amended to more explicitly define each of these steps. Consequential amendments have been effected in each of claims 2, 6, 9, 11 and 12, to reflect the revisions effected in claim 1, and to ensure proper antecedent support.

In preparing the above-noted amendments, careful attention was paid to ensure that no new subject matter has been introduced.

Referring now to the text of the Office Action:

- claims 1, 11-15 and 17 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over the teaching of United States Patent Application Publication No. 2003/0084409 (Abt et al.) in view of United States Patent No. 5,038,285 (Jouandet);
- claims 2-6, 9 and 10 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over the teaching of Abt et al. in view of Jouandet, and further in view of United States Patent No. 6,330,354 (Companion et al.) in view of United States Patent No. 5,272,763 (Maruyama);
- claims 7 and 8 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over the teaching of Abt et al., Jouandet, Companion et al., and Maruyama, and further in view of "Robotics, "Image Processing Techniques for Machine Vision" (Martin et al.); and
- claim 16 stands rejected under 35 U.S.C. § 103(a), as being unpatentable over the teaching of Abt et al. in view of Jouandet, and further in view of United States Patent No. 6,808,591 (Phan et al.).

The Examiners above-noted claim rejections are believed to be traversed by the above-noted claim amendments, and further in view of the following discussion.

Rejections under 35 U.S.C. § 103

The Examiner's further explanation provided in the Final Action mailed April 29, 2008, and in particular starting at section 8 of the Detailed Action, is appreciated. With reference to Jouandet, the Examiner argues that a "prior art reference must either be in the field of applicant's endeavour or, if not, be reasonably pertinent to the particular problem with which inventor was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Juandet is reasonably pertinent in resolving the claim limitations of claim 1".

With respect, Applicant does not understand what is meant by “resolving the claim limitations of claim 1”, but in any event this line or argument appears to depart from that sanctioned by the courts. In fact, as quoted by the Examiner, in order to be relied upon as a basis of rejection of the claimed invention, a prior art reference “must either be in the field of applicant's endeavour or, if not, be reasonably pertinent to the particular problem with which inventor was concerned” In re Oetiker, 24 USPQ2d 1443 (Fed. Cir. 1992).

In the present case, the particular problem with which the inventors were concerned is how to improve alignment between mosaic images of respective layers of an integrated circuit. [see para 0017]. However, Jouandet does not attempt to improve alignment between images (tomographic slices), and thus is not reasonably pertinent to the particular problem with which the inventors were concerned.

It is noted that Juandet teaches that each tomographic slice image is processed to produce a respective “straightened” linear surface line 152 [figs 12 and 13] having a selected base reference point; and that this base reference point can be used to align the respective surface lines 152 of each slice. See figs 12, 13 and col 6, lines 56-58. However, it is clear that aligning a set of lines (in this case linear surface lines 152) along a desired reference line is an entirely different problem from that of aligning images, and Jouandet does not attempt to address that problem.

Accordingly, Applicant respectfully maintains that Jouandet is non-analogous prior art, and as such may not properly be relied upon as a basis for rejection of the claimed invention.

Notwithstanding the foregoing, Applicant has amended the claims to even more explicitly define the features of the present invention.

Thus, for example, claim 1 now defines that: “at least two virtual reference points are established using endpoints from each of the mosaic images that are vertically aligned to within an uncertainty of the coarse alignment of the mosaic images”; and that “the virtual reference points [are used] to adjust x and y coordinates of each of the mosaic images to align the mosaic images within a three dimensional coordinate space”.

Jouandet appears to be silent regarding the alignment between the selected base reference point of each surface line 152, and so clearly fails to teach or fairly suggest that virtual reference points are established using endpoints from each of the mosaic images that are vertically aligned to within an uncertainty of the coarse alignment of the mosaic images as required by original claim 1. Accordingly, Applicant continues to believe that original claim 1 was patentable over Abt in view of Jouandet. Amended claim 1 now defines that at least two virtual reference points are defined for each mosaic image. This amendment is intended to conform the claim language to the description provided in the originally filed specification, and it also further distinguishes the present invention over the teaching of Abt in view of Jouandet.

Similarly, the amendment to define that virtual reference points are used to align the mosaic images within a three-dimensional coordinate space is intended to conform the claim language to the description provided in the originally filed specification.

Jouandet explicitly teaches that the base reference points are used to align linear surface lines 152 in a two-dimensional map. [fig 2 at 26, fig 4 and figs 12-24] As such Jouandet clearly fails to teach or fairly suggest that virtual reference points are used to define a three-dimensional coordinate space as required by original claim 1. Accordingly, Applicant continues to believe that original claim 1 was patentable over Abt in view of Jouandet. Amended claim 1 now defines that the virtual reference points are used to align the mosaic images within a three-dimensional coordinate space. Again, this amendment is intended to conform the claim language to the description provided in the originally filed specification. As note above, Jouandet does not attempt to align slice images using the base reference marks, or anything else for that matter. As such, this amendment is believed to yet further distinguish the present invention over the teaching of Abt in view of Jouandet.

In light of the foregoing, it is respectfully submitted that the presently claimed invention is clearly distinguishable over the teaching of the cited references, taken alone or in any combination. Thus it is believed that the present application is in condition for allowance, and early action in that respect is courteously solicited.

Respectfully submitted,

/Kent Daniels/

By: Kent Daniels, P.Eng.

Reg. No. 44206

Attorney for the Applicants

Date: June 24, 2008

Blake, Cassels & Graydon LLP
Suite 2000
45 O'Connor Street
Ottawa, Ontario
Canada, K1P 1A4
(613) 788-2252